

Review of Toxicity Reference Values (TRVs) for Sauget Area 2 Ecological Risk Assessment

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CH2MHILL has reviewed the table of Toxicity Reference Values (TRVs) provided by the Sauget Area 2 Sites Group (SA2SG) at the February 2003 meeting in St. Louis. Our comments are provided below along with some suggested approaches for revising values currently derived from mammalian-to-avian extrapolations.

General Comments:

1. It is believed that in general the majority of the mammalian, and several avian TRV values in Table 2 are derived from adequate, acceptable and appropriate sources. However, since such cited sources of TRV values are all secondary, further review of the ecotoxicology literature might provide improvements for chemical-specific TRV values.
2. It is generally inappropriate to extrapolate mammalian TRVs to avian values, as has been done for a variety of analytes in Table 2 (inorganics, SVOCs, VOCs, pesticides) and such TRV values should be revisited and/or revised accordingly.

Specific Suggestions:

1. Review primary toxicity literature: It is recommended that the primary literature should be reviewed to determine the appropriateness and suitability of selected toxicity data. If time and resources do not allow for review of primary literature, then at a minimal, the consequences of using secondary sources should adequately be included in a discussion of uncertainty.
2. Use avian TRVs for avian receptors: extrapolation of mammal-to-avian TRV values is generally inappropriate due to fundamental differences between mammalian and avian receptors (e.g., sensitivities, metabolism, physiology, behavior). There are numerous sources for avian-specific TRV values (i.e., for which mammalian TRV values are being extrapolated), a few of which are provided below. However the search should not be limited to these. Sources of acute toxicity, extrapolated to chronic values (using commonly used safety factors) are preferred over mammalian to avian extrapolations.

In the event that chemical-specific TRVs are still not available for certain chemicals after a search of a reasonable amount of toxicity data sources, it is suggested that one consider not using a TRV for such chemicals at all or as a last resort use of an extrapolation of

mammalian-to-avian TRV. Of course use of either of these choices would require appropriate discussion of uncertainty.

Suggested sources for avian-specific TRVs are

1. The EXtension TOXicology NETwork (EXTOXNET - <http://ace.orst.edu/info/extoxnet/>)
2. Schaffer et al. 1983.
3. Beene and Hudson. 1978.